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FS 671

Egg Production Costs and Returns

**COOPERATIVE EXTENSION SERVICE
SOUTH DAKOTA STATE UNIVERSITY
U.S. DEPARTMENT OF AGRICULTURE**

Egg Production Costs and Returns

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Methods of producing and marketing eggs have changed rapidly. Egg producers must adopt practices that reduce production costs per dozen eggs. Even then, they generally cannot be successful unless they can sell their eggs through stable and well-organized market outlets.

In the not-too-recent past, the egg industry was based largely on farm flocks of a few hundred layers. Although some of these small flocks still exist, they are no longer considered efficient unless they utilize surplus family labor and low cost feeds, share overhead costs with other farm enterprises and are near a specialized market.

Operators with large commercial flocks and whose production standards result in uniform quality eggs produce a high percentage of the total eggs going into market channels.

Efficient marketing is a must, but it will not ensure profits if production costs are too high. One of the most important factors in keeping costs down is flock size. A producer can make more efficient use of his labor, buildings and equipment if he has 10,000 or preferably 30,000 or more hens. He can usually find better markets if he has a large volume of high quality eggs to sell.

This fact sheet provides estimated costs and returns for South Dakota and is designed to help you determine the feasibility of establishing egg production facilities. Methods used in estimating the cost of egg production are included

so you may estimate budgets for different sized units.

Typical current rates of egg production per bird, feed conversion, investment costs for buildings and equipment, pullets, interest, and tax rates are provided. Because of extreme variability, investments in land are not included.

The data were obtained from interviews with building and equipment dealers, from feed companies, and from the Laying Flock Record Program progress reports. Since these are widely different sources, the data represent no particular, individual enterprise but are considered average costs for setting up a new operation.

Application of sound management techniques combined with careful atten-

tion to cost controls and marketing outlets could provide even greater income than that shown in these examples. The production of market eggs has shown alternating periods of wide and narrow margins.

Estimated costs

Estimated costs, based on 1977 data, in the following tables are for a 10,440- and a 26,880-bird flock, producing at the rate of 22 dozen eggs per hen housed for a 14-month period.

Assuming a producer develops a 10,440-bird unit, his permanent investment would be about \$4.34 per bird for the laying house and \$2.45 per bird for equipment. Pullet costs would be approximately \$2.20 per bird, making a total start-up cost of about \$9.00 per bird. Purchase of 20-week-old pullets is assumed. Such a unit can operate at a high level of efficiency under good management (Table 1).

Feed costs

The largest single-cost item in egg production is feed, more than 60% of all production costs. In Table 2 (10,440 unit) feed costs are based on a conversion rate of 4.25 pounds per dozen eggs and a value of \$130.00 per ton. Under these conditions, total costs for feed would be \$63,440 or 27.62 cents per dozen eggs.

Feed costs can be reduced (1) by improving the feed conversion rate, (2) by reducing the cost of feed per ton, or (3) both.

Building and equipment depreciation

Building cost for a 10,440-bird flock was estimated at \$45,360 and depreciated over a 20-year period. Building cost is calculated to be 1.15 cents per dozen eggs. Equipment was estimated to cost about \$25,578 and depreciated over an 8-year period. Equipment cost equals 1.62 cents per dozen eggs.

Table 1. Building and equipment costs for 10,440- and 26,880-bird cage laying units.

	10,440 layers	26,880 layers
Building dimensions (feet)	42 x 180	42 x 440
Total square feet (including egg cooler & workroom)	7,560	18,480
Building cost per square foot	\$ 6.00	\$ 6.00
Equipment cost per bird	2.45	2.45
Building & equipment cost per bird	6.79	6.58
Total cost of building	\$45,360.00	\$110,880.00
Total cost of equipment	\$25,578.00	\$ 65,856.00
Total cost of building & equipment	\$70,938.00	\$176,736.00
Pullet cost @ \$2.20	\$22,968.00	\$ 59,136.00
Total investment	\$93,906.00	\$235,872.00

Table 2. Estimated costs and returns of table egg production with 10,440 commercial layers producing 22 dozen eggs per hen housed on a 14 month basis with 1% mortality per month.

Expenses					
	Total cost (dollars)	Your estimate (dollars)	Cost per dozen eggs (cents)	Your estimate (cents)	
Operating costs					
Pullets (10,440 @ \$2.20)	\$ 22,968		10.00¢		
Feed (4.25 lb/doz = 488T @ \$130)	63,440		27.62		
Utilities & misc (@ \$0.25 x avg hens*)	2,427		1.06		
Repairs & maintenance:					
Building (1%/yr) (\$45,360)	529		.23		
Equipment (3%/yr) (\$25,578)	895		.39		
Insurance (\$0.60/\$100)	656		.28		
Total operating costs	\$ 90,915		39.58¢		
Fixed costs					
Depreciation:					
Building (\$45,360 @ 20 yrs)	\$ 2,646		1.15¢		
Equipment (\$25,578 @ 8 yrs)	3,730		1.62		
Interest on investment:					
Building & equipment (9%/yr)	3,724		1.62		
Pullets (9%/yr)	1,205		.53		
Taxes (\$1.30/\$100) (\$70,938)	1,075		.47		
Total fixed costs	\$ 12,380		5.39¢		
Total production costs (excluding labor & management)	\$103,295		44.97¢		

Receipts and return to labor & management

Old hen salvage (8,978 hens x (4.0 lbs @ \$0.08/lb) = \$2,873 or 1.25 cents/dozen eggs)
Eggs (22 doz x HH or 23.7 doz x avg hens = 229,680 dozen.)

	Receipts			Returns to labor & management	
	Total egg Receipts	+ Salvage	Total = receipts	Total returns	Return per dozen
Eggs @					
48¢/doz	\$110,246	\$ 2,873	\$113,119	\$ 9,824	4.28¢
50¢/doz	114,840	2,873	117,713	14,418	6.28
52¢/doz	119,434	2,873	122,307	19,012	8.28
54¢/doz	124,027	2,873	126,900	23,605	10.28
56¢/doz	128,621	2,873	131,494	28,199	12.28

For each additional 1-cent increase or decrease in egg price, total receipts and returns are increased or decreased \$2,296.80.

*HH = hen housed (10,440)
Avg hens = HH - ½ mortality = 10,440 - 731 = 9,709

Total building and equipment costs appear to be quite high at first glance. However, they are relatively small per dozen eggs when depreciated over a long period. Annual repairs and maintenance on the building and equipment are figured at 2% of their new cost or .62 cents per dozen eggs for this example.

Interest

Interest on all money invested in housing, equipment, and birds was calculated at 9% on one half of the new cost. Interest costs for the birds are .53 cents per dozen eggs and for housing and equipment 1.62 cents. Interest costs for these three items amounted to 2.15 cents per dozen eggs.

Other costs

Other costs (such as utilities, taxes, insurance and miscellaneous costs) will vary from one farm to another and from year to year. These costs are estimated to be about 1.81 cents per dozen eggs.

Returns

In our example, if eggs are sold for 50 cents per dozen, a producer having a production cost of 44.97 cents per dozen would have a return to labor and management of \$14,418. Also, any portion of the charges for interest and labor not used for borrowed capital and hired labor would represent a return to management and labor.

Annual income can be increased by lowering the feed conversion rate, increasing the number of eggs per bird, lowering mortality, holding down the costs of feed and birds, and by following a sound marketing program. A producer with a 10,440-bird laying flock can increase annual income:

1. \$3,770 for every ¼-pound reduction in feed consumed per dozen eggs.
2. \$2,610 for every ½-dozen increase in egg production per bird.
3. \$2,440 for every \$5 decrease in feed costs per ton.
4. \$1,044 for every 10 cents saved in pullet costs.
5. \$4,594 for every 2-cent increase in average price received per dozen eggs sold.

Increased income through sound marketing

The conditions under which a producer markets eggs affect his efficiency and the amount of his returns. Some egg assemblers are paying more per dozen for large volume, high quality eggs.

In order to reduce pick-up costs, the larger commercial egg flocks should be within 50 or 60 miles of the local assembly point or processing plant where eggs are first sold by producers. Since transportation costs for small quantities of eggs are higher per dozen than for large quantities, it is generally not efficient for

small laying flocks to be more than 10 to 15 miles from the assembly plant or point of first sale.

Egg producers located in an area where only one buyer assembles eggs are at some disadvantage in selling eggs. Producers will usually receive a higher price for their eggs when they have alternative markets among several large egg assemblers.

The poultryman of the future will be the person who is willing to follow quality production and marketing programs. It is generally advisable to produce eggs for a specific market and stay with that market throughout the year.

Data for a 26,880 unit are shown in Table 3. These figures indicate further economies of size resulting in about a 1/5-cent higher return per dozen for labor and management.

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Table 3. Estimated costs and returns of table egg production with 26,880 commercial layers producing 22 dozen eggs per hen housed on 14 month basis with 1% mortality per month.

Expenses	Total cost		Your estimate	
	(dollars)		(dollars)	(cents)
Operating costs				
Pullets (26,880 @ \$2.20)	\$ 59,136			10.00¢
Feed (4.25 lb/doz = 1256T @ \$130)	163,280			27.61
Utilities & misc (@ \$0.25 x avg hens *)	6,250			1.06
Repairs & maintenance:				
Building (1%/yr) (\$110,880)	1,294			.22
Equipment (3%/yr) (\$65,856)	2,305			.39
Insurance (\$0.60/\$100)	1,651			.28
Total operating costs	\$233,916			39.56¢
Fixed costs				
Depreciation:				
Building (\$110,880 @ 20 yrs)	\$ 6,468			1.09¢
Equipment (\$65,856 @ 8 yrs)	9,604			1.62
Interest on investment:				
Building & equipment (9%/yr)	9,279			1.57
Pullets (9%/yr)	3,105			.53
Taxes (\$1.30/\$100) (\$176,736)	2,298			.39
Total fixed costs	\$ 30,754			5.20¢
Total production costs (excluding labor & management)	\$264,670			44.76¢

Receipts and return to labor & management

Old hen salvage (23,117 hens x (4.0 lbs @ \$0.08/lb) = \$7,397 or 1.25 cents/dozen eggs)
Eggs (22 doz x HH or 23.7 doz x avg hens = 591,360 dozen.)

	Receipts			Returns to labor & management	
	Total egg Receipts	+ Salvage	Total = receipts	Total returns	Return per dozen
Eggs @					
48¢/doz	\$283,853	\$ 7,397	\$291,250	\$26,580	4.49¢
50¢/doz	295,680	7,397	303,077	38,407	6.49
52¢/doz	307,507	7,397	314,904	50,234	8.49
54¢/doz	319,334	7,397	326,731	62,061	10.49
56¢/doz	331,162	7,397	338,559	73,889	12.49

For each additional 1-cent increase or decrease in egg price, total receipts and returns are increased or decreased \$5,913.60.

*HH = hen housed (26,880)

Avg hens = HH - 1/2 mortality = 26,880 - 1,882 = 24,998

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